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ience Abstracts

Section A

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Completion of Volume 68 of Science Abstracts

The publication of this Index issue completes volume 68 (1965) of this Section of Science Abstracts. The suggested order for the binding of the various issues making up this volume is as follows: Part I comprising the January–June issues, Author Index Part 1, Subject Index Part I; Part II comprising the July–December issues, Author Index Part II, and Subject Index Part II. The title page together with the preliminary pages which should be bound at the beginning of each Part are to be found at the beginning of each Author Index. The Author Index published with each monthly issue should *not* be bound as all the entries have been cumulated into their respective half-year Author Indexes.

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SUBJECT INDEX–PART II

INTRODUCTION

The entries in this index refer to the abstracts by their serial number, not by the page number. The entries are grouped under headings (printed in bold type, e.g. "**Abrasion**") which represent, in the main, general categories or concepts rather than specific names. If a heading for a particular subject does not appear, a more general heading should be consulted; for example, "Zone plates" would be listed under "**Diffraction/light**"; "Barkhausen discontinuities" under "**Magnetization process**". There are numerous cross-references directing attention to related headings in other parts of the index.

Many of the headings are subdivided by the use of subheadings, which are indented (i.e. printed slightly to the right) and commence with a small letter (for example, see the subheadings under "**Absorption**").

ARRANGEMENT OF HEADINGS AND SUBHEADINGS

The headings are arranged throughout the index in alphabetical order according to British Standard 1749:1951 (the "word by word" system, not "reading right through"). The subheadings, with a few exceptions, are themselves arranged in alphabetical order under their respective headings. The exceptions (for example, see the subheadings under "**Spectra**", "**Crystal structure, atomic**") are cases where a more logical order is preferable to a purely alphabetical one.

ARRANGEMENTS OF ENTRIES UNDER HEADINGS

Entries are arranged in two alphabetical groups as follows. First group: generalities and named substances (in words); second group: named substances (chemical formulae). If a search is being made for a particular substance, both the first and second alphabetical groups should be inspected since, for example, alumina may also be listed as Al_2O_3.

COLLECTED LIST OF SUBJECT HEADINGS

The alphabetical arrangement of the headings is the most convenient for locating a known heading quickly, but there may be other related headings elsewhere in the index of which the reader is unaware, and which he would only come across by accident. To assist the reader to discover all the headings appropriate to his subject, a collected list of the headings is given at the end of the index, which should be consulted as a matter of routine each time a search is made. In this list, the headings are not arranged in alphabetical order, but are grouped into sections by subject on the same basis as the arrangement of the abstracts in the monthly issues of Physics Abstracts. By using this list, the reader can quickly determine which are the headings appropriate to his subject, and they are then easily found in the main index in their alphabetical position.

HEADINGS WITH NO ENTRIES

Because physics is a developing subject, it is not possible to maintain the list of headings unchanged from year to year; it is subject to a continuous process of revision, with the introduction of new headings and subheadings, and the alteration and elimination of old ones. This process is a gradual one, however, and the great majority of the headings are the same as those of the previous year. To assist in maintaining the continuity of the index, all the headings in current use in a given year are printed, even those for which there are no abstracts to be recorded. The latter are followed by the announcement "No entries"; this supplies confirmation that these headings have not been dropped from the index, and entries may reappear under them in the next issue of the index.

ELEMENTS, COMPOUNDS AND OTHER SUBSTANCES

The names of elements, their compounds, a few compounds of special interest (e.g. "**Ruby**", "**Water**") and a few common materials (e.g. "**Wood**", "**Paper**") are included as headings or subheadings (e.g. "**barium titanate**" under "**Barium compounds**"). Under these, as well as under the appropriate "subject" headings, are listed any abstracts which contain significant physical information about the element, compound or substance named; except however, that abstracts listed under headings referring to nuclear properties, including radioactivity, are not necessarily also listed under the substance name. The entries under these headings are themselves arranged in alphabetical order of substance or nuclide names, so that a given substance can be readily located.

Inorganic compounds of the elements are listed under the first element in the chemical formula, and all the compounds of a given element are grouped under a single heading (e.g. "**Sodium compounds**"). Alloys are listed under compounds of the base or first-named constituent, e.g. Au–Ag alloys under "**Gold compounds**". There are also four special headings for the common alloys: "**Aluminium alloys**", "**Copper alloys**", "**Iron alloys**", "**Nickel alloys**". Organic compounds are grouped under "**Organic compounds**", "**Polymers**", "**Plastics**" and under special substance headings such as "**Paper**", "**Proteins**", etc.; all the latter are listed in the collected list of headings at the end of the index.

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Magnetic resonance and
    [relaxation
Molecules
    nuclear coupling
    relaxation
Nuclear magnetic resonance
    [and relaxation

Nuclear quadrupole resonance
Paramagnetic resonance and
    [relaxatio

Dissociation · Free Radicals

Association
    gases
Free radicals
Heat of dissociation

Molecules
    dissociation
    dissociation energies

Intermolecular Mechanics

Collision processes
Molecular beams

Molecules
    intermolecular mechanics

Macromolecules · Polymers

Association
Heat of formation
Isomerism
Macromolecules

Molecules
    configuration and dimensio
Polymers   [macromolec-
Proteins

Mesic Molecules

Molecules, mesic

ELECTRIC DISCHARGES

Arcs, electric
Breakdown, electric
    gases
Corona, electric discharge

Discharges, electric
    glows
    high-frequency
Gas-discharge tubes
Lightning
Sparks, electric
Sputtering

IONIZATION

Dissociation
Ion velocity
Ionization
    gases
Ionization potential
Ionization, surface

Ions
    recombination
    scattering
Shock waves
    effects
Space charge

PLASMA

Discharges, electric
    glows
    high-frequency
Electron gas
Ionization
    gases
Nuclear fusion
Nuclear reactors, fusion

Plasma
    electromagnetic wave prop
    magnetohydrodynamics
    measurement techniques
Shock waves
    effects
Space charge
Thermonuclear reactions

Plasma Confinement

Plasma
    confinement

Plasma Oscillations and Stability

Plasma
    magnetohydrodynamics
    oscillations
    stability

Plasma Devices

Plasma
    devices
Nuclear reactors, fusion

FLUIDS

- Flow
- Fluids
- Hydrodynamics
- Hydrostatics
- Oscillations
- Turbulence
- Vortices
- Waves

MECHANICS OF GASES

- Acoustic streaming
- Aerodynamics
- Anemometers
- Compressibility
  - gases
- Condensation
- Density
  - gases
- Diffusion in gases
  - thermal
- Flow
  - gases
- Flowmeters
- Gases
- Humidity
- Hygrometers
- Jets
- Manometers
- Moisture
- Pressure
- Pumps
- Radiation pressure
- Supersonic flow
- Turbulence
- Viscometers
- Viscosity
  - gases
- Vortices
- Waves

GASEOUS STATE

- Absorption
  - acoustic waves
  - acoustic waves,ultrasonic
  - electromagnetic waves
  - light
- Association
  - gases
- Breakdown,electric
  - gases
- Conductivity,electrical
  - gases
- Conductivity,thermal
  - gases
  - measurement
- Dielectric properties of substs.
  - gases
- Diffraction
  - acoustic waves
  - acoustic waves,ultrasonic
  - electromagnetic waves
  - light
- Diffusion
  - acoustic waves
  - electromagnetic waves
  - light
- Electrical properties of substs.
- Electroluminescence
- Equations of state
  - gases
- Gases
- Helium
  - gas
- Interference
  - acoustic waves
- Joule—Thomson effect
- Kinetic theory
  - gases
- Lasers
  - gaseous
- Luminescence
  - gases
- Magnetic resonance and relaxation
- Molecules
  - intermolecular mechanics
- Nuclear magnetic resonance and relaxation
- Nuclear quadrupole resonance
- Optical properties of substances
- Paramagnetic resonance and relaxation
- Reflection
  - acoustic waves
  - acoustic waves, ultrasonic
  - electromagnetic waves
  - light
- Refraction
  - acoustic waves
  - acoustic waves, ultrasonic
  - electromagnetic waves
  - light
- Scattering
  - acoustic waves
  - acoustic waves, ultrasonic
  - electromagnetic waves
  - light
- Sorption
- Specific heat
  - gases
- Spectra
- Statistical mechanics
- Thermoluminescence
- Transmission
  - acoustic waves
  - acoustic waves,ultrasonic
  - light
- Velocity
  - acoustic waves
  - acoustic waves,ultrasonic

Viscosity · Diffusion

- Diffusion in gases
  - thermal
- Transport processes
- Viscosity
  - gases

VACUUM PHYSICS

- Glass—metal seals
- Leak detection
- Manometers
- Sputtering
- Vacuum apparatus
- Vacuum gauges
- Vacuum pumps
- Vacuum technique

MECHANICS OF LIQUIDS

- Acoustic streaming
- Bubbles
- Capillarity
- Cavitation
- Compressibility
  - liquids
- Density
  - liquids
- Diffusion in liquids
  - thermal
- Double refraction
  - flow
- Drops
- Elasticity
  - liquids
- Emulsions
- Films
  - liquid
- Filters
- Flow
  - liquids
- Flowmeters
- Foams
- Hydrodynamics
- Hydrostatics
- Jets
- Liquid oscillations
- Liquid waves
  - surface
- Lubrication
- Moisture
- Pressure
- Pumps
- Radiation pressure
- Rheology
- Schlieren systems
- Sprays
- Surface energy
- Surface tension
- Surface tension measurement
- Thixotropy
- Turbulence
- Viscometers
- Viscosity
  - liquids
- Vortices
- Wetting

LIQUID STATE

- Liquids
- Metals
- Semiconductors

Theory and Structure of Liquids

Solutions

- Association
  - liquids
- Electron diffraction examination of materials
- Equations of state
  - liquids
- Heat of solution
- Liquid crystals
- Liquids
  - structure
  - theory
- Neutron diffraction examination of materials
- Neutrons
  - scattering
- Polymers
- Solubility
- Solutions
- X-ray examination of materials
  - liquids

Viscosity · Surface Tension · Diffusion

- Diffusion in liquids
  - thermal
- Filters
- Membranes
- Osmosis
- Sorption
- Surface tension
- Surface tension measurement
- Transport processes
- Viscosity
  - liquids

Thermal Properties of Liquids

- Conductivity,thermal
  - liquids
  - measurement
- Heat of solution
- Specific heat
  - liquids
- Thermal expansion
- Thermodynamic properties

Acoustic Properties of Liquids

- Absorption
  - acoustic waves
  - acoustic waves, ultrasonic
- Acoustic wave propagation
  - ultrasonic
- Diffraction
  - acoustic waves
  - acoustic waves, ultrasonic
- Diffusion
  - acoustic waves
- Interference
  - acoustic waves
- Reflection
  - acoustic waves
  - acoustic waves, ultrasonic
- Refraction
  - acoustic waves
  - acoustic waves, ultrasonic
- Scattering
  - acoustic waves
  - acoustic waves, ultrasonic
- Transmission
  - acoustic waves
  - acoustic waves, ultrasonic
- Velocity
  - acoustic waves
  - acoustic waves, ultrasonic

Optical Properties of Liquids

- Absorption
    - electromagnetic waves
    - light
- Diffraction
    - electromagnetic waves
    - light
- Diffusion
    - electromagnetic waves
    - light
- Electroluminescence
- Luminescence
    - liquids and solutions
- Optical properties of substs.
- Raman spectra
    - inorganic
    - organic
- Reflection
    - electromagnetic waves
    - light
- Refraction
    - electromagnetic waves
    - light
- Scattering
    - electromagnetic waves
    - light
- Spectra
    - inorganic liquids and solutions
- Thermoluminescence
- Transmission
    - light

Electrical and Magnetic Properties of Liquids

- Absorption
    - electromagnetic waves
- Breakdown, electric
    - liquids
- Conductivity, electrical
    - liquids
    - liquids, electrolytic
- Dielectric properties of substs.
    - liquids and solutions
- Electrical properties of substs.
- Magnetic properties of substs.
- Magnetic resonance and relaxat
- Metals
- Nuclear magnetic resonance an
    - [relaxation
- Nuclear quadrupole resonance
- Paramagnetic resonance and
    - [relaxation
- Semiconducting materials
- Semiconductors

DISPERSIONS · COLLOIDS

- Aerosols
- Centrifuges
- Colloids
- Disperse systems
- Electrophoresis
- Emulsions
- Filters
- Foams
- Gels
- Heat of solution
- Membranes
- Osmosis
- Particle size
- Precipitation
- Sedimentation
- Sols
- Solubility
- Solutions
- Surface phenomena
- Suspensions
- Thixotropy

CHANGE OF STATE

- Boiling
- Boiling point
- Condensation
- Critical constants, thermal
- Distillation
- Drying
- Equations of state
    - gas
    - liquid
    - solid
- Evaporation
- Freezing
- Heat of fusion
- Heat of sublimation
- Heat of transformation
- Heat of vaporization
- Humidity
- Liquefaction, gases
- Melting
- Melting point
- Phase equilibrium
- Phase transformations
- Sublimation
- Supercooling
- Vapour pressure
- Vapour pressure measurement
- Vaporization

SOLID-STATE PHYSICS

- Bonds
- Crystals
    - internal fields
- Crystal properties
- Equations of state
    - solids
- Metals
    - theory
- Mössbauer effect
- Nuclear orientation
- Orbital calculation methods
- Solids
    - structure
    - theory

STRUCTURE OF SOLIDS · ALLOYS

- Alloys
- Crystal structure
- Density
    - solids
- Fibres
- Filters
- Granular structure
- Heat treatment
    - alloys
- Membranes
- Particle size
- Permeability, mechanical
- Polymorphism
- Porous materials
- Powders
- Sintering
- Solids
    - structure
- Solid solutions
- Solubility

Solid-State Phase Transformations

- Heat treatment
    - alloys
- Phase equilibrium
- Phase transformations
    - solid-state
- Polymorphism
- Precipitation

Surfaces

- Surface energy
- Surface measurement
- Surface phenomena
- Surface texture

Films

- Evaporation
- Films
    - solid
- Sputtering
- Sublimation

Adsorption

- Adsorption
- Adsorbed layers
- Heat of adsorption
- Sorption

NON-CRYSTALLINE STATE

- Amorphous state
- Glass
- Plastics
- Polymers
- Rubber
- Vitreous state
- Waxes

CRYSTALLOGRAPHY

- Crystal chemistry
- Crystal properties
- Crystal structure
- Crystallization
- Crystallography
- Crystals
    - etching
    - faces
    - growth
    - orientation
    - twinning
    - whiskers
- Minerals
- Polymorphism
- Precipitation
- Solids
    - structure
- Surface texture
- Zone melting and refining

MICROSTRUCTURE OF SOLIDS

- Amorphous state
- Crystal structure
    - microstructure
- Electron diffraction examination
- Electron microscope examination
- Electron microscopy
- Fibres
- Granular structure
- Ion microscopes
- Metallurgy
- Microscopy
- Neutron diffraction examinati
- Particle size
- Powders
- Porous materials
- Radiography
- Surface texture
- X-ray examination of materia
    - microstructure
    - molecular structure

CRYSTAL LATTICE STRUCTURES

- Crystal structure, atomic
  - elements
  - alloys
  - inorganic compounds
  - organic compounds
- Electron diffraction crystallography
- Electron diffraction examination
- Electron microscope examination
- Neutron diffraction crystallography
- Neutron diffraction examination
- Polymers
- X-ray absorption
- X-ray crystallography
  - apparatus
  - calculation apparatus
  - calculation methods
  - technique
- X-ray diffraction
- X-ray examination of materials
  - molecular structure
- X-ray measurement
- X-ray monochromators
- X-ray reflection
- X-ray scattering
- X-ray tubes

LATTICE MECHANICS

- Crystals
  - lattice mechanics
- Mössbauer effect

ACOUSTICAL PROPERTIES OF SOLIDS

- Absorption
  - acoustic waves
  - acoustic waves, ultrasonic
- Acoustic wave propagation
  - ultrasonic
- Acoustoelectric effects
- Diffraction
  - acoustic waves
  - acoustic waves, ultrasonic
- Dispersion, acoustic
  - ultrasonic
- Magnetoacoustic effects
- Reflection
  - acoustic waves
  - acoustic waves, ultrasonic
- Refraction
  - acoustic waves
  - acoustic waves, ultrasonic
- Scattering
  - acoustic waves
  - acoustic waves, ultrasonic
- Transmission
  - acoustic waves
  - acoustic waves, ultrasonic
- Velocity
  - acoustic waves
  - acoustic waves, ultrasonic

THERMAL PROPERTIES OF SOLIDS

- Conductivity, thermal
  - measurement
  - solids
- Equations of state
  - solids
- Heat conduction
- Specific heat
  - solids
- Thermal expansion
- Thermodynamic properties

DIFFUSION IN SOLIDS

- Diffusion in solids
- Permeability, mechanical

DEFECT PROPERTIES OF SOLIDS

- Cold working
- Creep
- Crystal imperfections
  - dislocations
  - interstitials
  - vacancies
  - etching
  - twinning
- Crystal structure
- Deformation
- Elastic deformation
- Electron diffraction examination
  [of materials
- Electron microscope examination
- Heat treatment [of materials
  - alloys
- Internal friction
- Neutron diffraction examination
- Plastic deformation [of materials
- Plastic flow
- Slip
- Stresses, internal
- Work hardening
- X-ray examination of materials
  - microstructure

Colour Centres

- Absorption
  - light
- Colour centres
- X-rays
  - effects

RADIATION EFFECTS IN SOLIDS

- Acoustic waves
  - effects
- Alpha-rays
  - effects
- Beta-rays
  - effects
- Deuterons
  - effects
- Electron beams
  - effects
- Gamma-rays
  - effects
- Hyperons
  - effects
- Ion beams
  - effects
- Mesons
  - effects
- Neutrons
  - effects
- Physical effects of radiations
- Protons
  - effects
- Sputtering
- X-rays
  - effects

MECHANICAL PROPERTIES OF SOLIDS

- Abrasion
- Adhesion
- Bending
- Brittleness
- Cold working
- Compressibility
- Corrosion
- Cracks
- Creep
- Deformation
- Density
  - solids
- Elastic constants
  - measurement
- Elastic deformation
- Elastic fatigue
- Elastic limit
- Elastic relaxation
- Elasticity
- Fracture
- Hardness
- Heat treatment
  - alloys
- High-pressure phenomena
- Hysteresis [and effects
- Impact
- Internal friction
- Lubrication
- Magnetomechanical effects
- Mechanical properties of substs.
- Mechanical strength
  - compressive
  - shear
  - tensile
- Photoelasticity
- Physical effects of radiations
- Plastic deformation
- Plastic flow
- Plasticity
- Rheology
- Slip
- Strain gauges
- Stress analysis
- Stress effects
- Stress/strain relations
- Stresses, internal
- Thermoelasticity
- Thixotropy
- Torsion
- Viscoelasticity
- Wear
- Work hardening

ELECTRON STATES IN SOLIDS

- Crystal properties
- Crystal electron states
  - excitons
  - Fermi level
  - Fermi surface
  - plasma
  - polarons
  - surface
- Cyclotron resonance
- Electron beams
  - effects
- Electron gas
- Electron pairs
  - annihilation
- Electrons
  - scattering
  - absorption
  - radiation
- Hall effect
- Magnetoacoustic effects
- Metals
  - theory
- Piezoresistance
- Solids
  - theory
- Surface phenomena

ELECTRICAL PROPERTIES OF SOLIDS

- Acoustoelectric effects
- Conduction, electrical
- Conductivity, electrical
  - solids
- Contact potential
- Contact resistance
- Crystal electron states
- Eddy currents
- Electrical properties of substs.
- Electron gas
- Electro-optical effects
- Fluctuations
  - electrical
- Hall effect
- Magnetoelectric effects
- Magnetoresistance
- Magnetothermal effects
- Piezoresistance
- Resistance, electrical
- Space charge

Metals · Conductors

- Electron gas
- Hall effect
- Magnetoelectric effects
- Magnetoresistance
- Metals
  - theory
- Piezoresistance
- Skin effect

Superconductivity

- Superconductivity

Superconducting Materials and Devices

- Superconducting materials and devices

Semiconductors

- Acoustoelectric effects
- Contact potential
- Contact resistance
- Electron gas
- Electro-optical effects
- Fluctuations
    - electrical
- Hall effect
- Magnetoelectric effects
- Magnetoresistance
- Magnetothermal effects
- Piezoresistance
- Semiconductors
- Space charge

Semiconducting Materials

- Semiconducting materials
    - gallium arsenide
    - germanium
    - indium antimonide
    - silicon

Semiconducting Devices

- Counters
    - semiconductor
- Semiconducting devices
    - diodes
    - p—n junctions
    - transistors
    - tunnel diodes
- Rectifiers

Dielectrics

- Breakdown, electric
    - solids
- Contact potential
- Dielectric devices
- Dielectric measurement
- Dielectric phenomena
- Dielectric properties of substs.
    - solids
- Electrets
- Electric charge
- Electric fields
- Electric strength
- Electrostriction
- Ferroelectric materials
    - barium titanate
- Ferroelectric phenomena
- Hysteresis
- Piezoelectricity
- Piezoelectric oscillations
- Pyroelectricity
- Relaxation
- Rochelle salt
- Space charge
- Triboelectricity

THERMOELECTRIC PROPERTIES OF SOLIDS

- Thermocouples
- Thermoelectricity

PHOTOCONDUCTIVITY

PHOTOVOLTAIC EFFECTS

- Photoconductivity
- Photoelectricity
- Photoelectromagnetic effects
- Photovoltaic effects

ELECTRON AND ION EMISSION BY SOLIDS

- Cathodes
    - oxide
- Electron emission
    - field emission
    - photoelectric
    - secondary
    - thermionic
- Ion emission
    - secondary
    - thermionic
- Ionization
    - solids
- Ionization, surface

MAGNETIC PROPERTIES OF SOLIDS

- Antiferromagnetism
- de Haas—van Alphen effect
- Diamagnetism
- Electron diffraction examination [of materials
- Electron microscope examination [of materials
- Ferrimagnetism
- Ferrites
- Ferromagnetism
    - spin-wave theory
- Gyromagnetic ratio
- Hall effect
- Hysteresis
- Magnetic devices
- Magnetic fields
    - effects
- Magnetic films
- Magnetic properties of substs.
    - antiferromagnetic
    - diamagnetic
    - ferrimagnetic
    - ferromagnetic
    - paramagnetic
    - transitions
- Magnetism
- Magnetization process
- Magnetization state
    - domains
- Magnetoacoustic effects
- Magnetoelectric effects
- Magneto-optical effects
- Magnetoresistance
- Magnetostriction
- Magnetothermal effects
- Neutron diffraction examinatio [of materials
- Paramagnetism
- Zeeman effect

Paramagnetic Properties

- Magnetic properties of substances
    - paramagnetic
- Paramagnetism

Ferromagnetic Properties

- Ferromagnetism
    - spin-wave theory
- Hysteresis
- Magnetic devices
- Magnetic films
- Magnetic properties of substanc
    - ferromagnetic
- Magnetization process
- Magnetization state
    - domains

Ferrimagnetic Properties · Ferrites

- Ferrimagnetism
- Ferrites
- Hysteresis
- Magnetic devices
- Magnetic films
- Magnetic properties of substs.
    - ferrimagnetic

Antiferromagnetic Properties

- Antiferromagnetism
- Magnetic properties of substs.
    - antiferromagnetic

MAGNETIC RESONANCES IN SOLIDS

- Antiferromagnetic resonance
- Cyclotron resonance
- Ferrimagnetic resonance
- Ferromagnetic resonance
- Gyromagnetic ratio
- Magnetic resonance and relaxation
- Magnetomechanical effects
- Nuclear magnetic resonance an
    - measurement [relaxation
- Nuclear quadrupole resonance
- Optical pumping
- Paramagnetic resonance and
    - measurement [relaxation

OPTICAL PROPERTIES OF SOLIDS

- Absorption
    - electromagnetic waves
    - light
- Diffraction
    - electromagnetic waves
    - light
- Diffusion
    - electromagnetic waves
    - light
- Dispersion, optical
- Double refraction
    - mechanical
- Electromag. wave propagation
- Electro-optical effects
- Emissivity
- Interference
    - light
- Lasers
    - solid
- Magneto-optical effects
- Optical constants
- Optical films
- Optical materials
- Optical properties of substances
- Optical pumping
- Optical rotation
- Optics
- Photoelasticity
- Pleochroism
- Polarized light
- Raman spectra
    - inorganic
    - organic
- Reflection
    - electromagnetic waves
    - light
- Reflectivity
- Refraction
    - electromagnetic waves
    - light
- Refractive index
    - light
- Scattering
    - electromagnetic waves
    - light
- Spectra
    - inorganic solids
        - radiofrequency
    - organic molecules and [substances
        - infrared
        - radiofrequency
- Spectral line breadth
- Stark effect
- Transmission
    - light
- Transparency
- Velocity
    - light
- X-ray spectra
    - absorption
    - emission
- Zeeman effect

Luminescence of Solids

- Colour centres
- Counters, scintillation
- Electroluminescence
- Luminescence
    - solids, inorganic
    - solids, organic
- Luminescent devices
- Thermoluminescence

PHYSICAL CHEMISTRY

- Atomic weight
- Balances
- Bonds
- Centrifuges
- Chemical structure
- Chemical technology
- Distillation
- Elements
  - origin
  - relative abundances
- Filters
- Isomerism
- Laboratory app.and technique
- Macromolecules
- Molecular weight
- Molecular weight determn.
- Periodic system
- Physical chemistry
- Precipitation
- Pumps
- Quantum chemistry
- Sedimentation
- Valency

THERMOCHEMISTRY · REACTIONS

- Association
  - gases
  - liquids
- Catalysis
- Chemical reactions
- Combustion
- Corrosion
- Crystal chemistry
- Detonation
- Dissociation
- Exchanges, chemical
- Explosions
- Flames
- Heat of adsorption
- Heat of combustion
- Heat of dissociation
- Heat of formation
- Heat of reaction
- Isotope exchanges
- Oxidation
- Phase equilibrium
- Phase transformations
- Polymerization
- Polymers
- Reaction kinetics
- Sorption

ELECTROCHEMISTRY

- Conductivity, electrical
  - liquids, electrolytic
- Dissociation
  - electrolytic
- Electrochemistry
  - electrodes
- Electrokinetic effects
- Electrolysis
- Electrolytic deposition
- Electrophoresis
- Ion velocity
  - electrolytic
- Ions, electrolytic

PHOTOCHEMISTRY
RADIATION CHEMISTRY
RADIOCHEMISTRY

- Chemical effects of radiations
  - acoustic waves
  - ionizing radiations
- Nuclear reactions
  - chemical effects
- Photochemistry
- Radiochemistry

PHYSICAL METHODS OF CHEMICAL ANALYSIS

- Chemical analysis
  - adsorption
  - by mass spectrometry
  - by nuclear reactions
  - electrochemical
  - radioactive
  - X-ray
- Chromatography
- Radioactive tracers
- Spectrochemical analysis
- Tracers

GEOPHYSICS

- Earth
  - age
  - composition
  - electricity
  - heat
  - rotation
- Geodesy
- Geophysical prospecting
- Geophysics
- Glaciers
- Gravity
- Minerals
- Oceanography
- Radioactive dating
- Radioactivity
- Seawater
- Seismic waves
- Seismology

ATMOSPHERE

- Altimeters
- Anemometers
- Atmosphere
  - composition
  - humidity
  - movements
  - precipitation
  - radioactivity
  - structure
  - temperature
  - thermodynamics
- Atmospheric acoustics
- Atmospheric electricity
- Atmospheric optics
- Atmospheric pressure and [density
- Atmospheric spectra
- Atmospherics
- Clouds
- Condensation
- Electromagnetic wave propagation
  - atmosphere
- Evaporation
- Fallout
- Fog
- Humidity
- Hygrometers
- Ice
- Lightning
- Meteorological instruments
- Meteorology
- Rain
- Rockets
- Satellites, artificial
- Sky brightness
- Snow
- Sunlight
- Thunderstorms
- Twilight
- Wind

UPPER ATMOSPHERE

- Airglow
- Altimeters
- Atmosphere
  - composition
  - movements
  - radioactivity
  - radiation belts
- Atmosphere
  - structure
  - temperature
  - thermodynamics
  - upper
- Atmospheric electricity
- Atmospheric optics
- Atmospheric pressure and [density
- Atmospheric spectra
- Atmospherics
- Aurora
- Fallout
- Ionization, atmosphere
- Meteors
- Rockets
- Satellites, artificial
- Sky brightness
- Sunlight
- Twilight
- Zodiacal light

Ionosphere

- Atmosherics
- Aurora
- Electromag. wave propagation
  - ionosphere
- Ionization, atmosphere
- Ionosphere
  - D-region
  - E-region
  - F-region
- Ionosphere meas. apparatus

GEOMAGNETISM

- Compasses
- Earth
  - magnetic field
  - magnetic field, variations
- Magnetic storms
- Rock magnetism

SPACE RESEARCH TECHNIQUES

- Rockets
- Satellites, artificial
- Space research
- Space vehicles
  - instrumentation

ASTROPHYSICS

- Astronomical instruments
- Astronomical observations
- Astronomical spectra
- Astronomy and astrophysics
- Celestial mechanics
- Cosmic rays
- Cosmology
- Elements
  - origin
  - relative abundances
- Gravitation
- Telescopes
  - astronomical

STARS · GALAXIES

- Cosmic radiations, r.f.
- Galaxies
  - the Galaxy
- Interstellar matter
- Magnetohydrodynamics
- Nebulae
- Novae
- Stars
  - composition
  - magnetism
  - radiation
  - spectra
  - structure
- Thermonuclear reactions

SOLAR SYSTEM · SUN

- Comets
- Cosmic rays
- Earth
  - rotation
- Gravitation
- Interplanetary magnetic field
- Interplanetary matter
- Meteorites
- Meteors
- Moon
- Planets
- Radioastronomy
- Solar system
- Sun
  - corona
  - eclipses
  - flares
  - magnetism
  - prominences
  - radiation
  - radiation,corpuscular
  - radiation,r.f.
  - spectra
- Sunspots
- Zodiacal light

RADIOASTRONOMY TECHNIQUES

- Cosmic radiations, r.f.
- Radioastronomy

BIOPHYSICS

- Biological effects of radiations
  - acoustic waves
  - ionizing radiations
- Biological technique and instruments
- Biology
- Biophysics
- Blood
- Dosimetry
- Medical science
- Physiology
- Proteins
- Radiation protection
- Radiography
- Zoology

TECHNIQUE · MATERIALS

- Biological technique and instruments
- Chemical technology
- Heat treatment
  - alloys
- Laboratory apparatus and technique
- Leak detection
- Low-temperature technique
- Materials
- Metallurgy
- Vacuum technique
- Zone melting and refining

HIGH-PRESSURE TECHNIQUES

- High-pressure phenomena and effects

LIST OF SUBJECT INDEX HEADINGS

SUBSTANCES

Chemical elements and inorganic compounds

All the chemical elements are listed by name, followed by their compounds, e.g. "Cadmium", "Cadmium compounds",

"Hydrogen" is subdivided by the subheadings "neutral atoms" "neutral molecules", and "ions". "Deuterium" and "Tritium" are independent headings. "Hydrogen compounds" is supplemented by "Ice", "Steam", and "Water".

"Oxygen" is supplemented by "Ozone", and "Carbon" is supplemented by "Diamonds" and "Graphite".

The following inorganic compounds are further subdivided by subheadings as shown:-

- Barium compounds
  - barium titanate*
- Cadmium compounds
  - cadmium sulphide
- Calcium compounds
  - calcium fluoride
- Gallium compounds
  - gallium arsenide**
- Indium compounds
  - indium antimonide**
- Lithium compounds
  - lithium fluoride
- Nitrogen compounds
  - ammonia
  - ammonium compounds
- Potassium compounds
  - potassium bromide
  - potassium chloride
- Sodium compounds
  - sodium chloride
- Zinc compounds
  - zinc sulphide

* Ferroelectric properties are listed under "Ferroelectric materials/barium titanate".

** Semiconducting properties are listed under the corresponding subheadings of "Semiconducting materials".

Organic compounds

Organic compounds are grouped under headings "Organic compounds", "Polymers", "Plastics", "Proteins"; "Rochelle salt" is an independent heading.

Substance groups

In addition there are the following headings for groups of elements, compounds or substances:-

- Actinides
- Actinide compounds
- Alkali metals
- Alkali-metal compounds
  - halides
- Alkaline-earth metals
- Alkaline-earth compounds
- Ferrites
- Ferroelectric materials
  - barium titanate*
- Garnets
- Halogens
- Inert gases
- Metals
- Minerals
- Rare-earth metals
- Rare-earth compounds
- Semiconductors
- Semiconducting materials
  - gallium arsenide**
  - germanium**
  - indium antimonide**
  - silicon**
- Transition metals
- Transition-metal compounds

* Used for ferroelectric properties only.

** Used for semiconducting properties only.

Alloys

General papers on alloys are indexed under "Alloys". Alloys of specified composition are listed under, either

(i) special alloy headings (there are five of them: "Aluminium alloys", "Copper alloys","Iron alloys", "Nickel alloys", "Steel"), e.g. Al—Ni alloys under "Aluminium alloys", or

(ii) compounds of the base or first-named element, e.g. Mn—Zn alloys under "Manganese compounds", and silicon-iron under "Iron alloys".

Special substances and materials

There are also the following special headings for certain common substances:-

- Air
- Blood
- Ceramics
- Clay
- Coal
- Concrete
- Fibres
- Gelatin
- Glass
- Mica
- Optical materials
- Paper
- Porous materials
- Powders
- Quartz
- Rubber
- Ruby
- Sand
- Seawater
- Soil
- Waxes
- Wood

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